APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,858	12/29/2004	Hitoshi Hayashi	5259-000043/NP	9302

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HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER
LU, ZHIYU

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/519,858	HAYASHI ET AL.
	Examiner	Art Unit	
	Zhiyu Lu	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 December 2004</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-9</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-9</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1.   Claims 8-9 are rejected under 35 U.S.C. 112, first paragraph, as based on a means

recitation does not appear in combination with another recited element of means. In re Hyatt,

708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983). A single means claim which

covered every conceivable means for achieving the stated purpose was held nonenabling for the

scope of the claim because the specification disclosed at most only those means known to the

inventor.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 1-7 provide for the use of a noncontact RF ID system, but, since the claim does

not set forth any steps involved in the method/process, it is unclear what method/process

applicant is intending to encompass. A claim is indefinite where it merely recites a use without

any active, positive steps delimiting how this use is actually practiced.

Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without

setting forth any steps involved in the process, results in an improper definition of a process, i.e.,

results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex*

parte Dunki, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F.

Supp. 131, 149 USPQ 475 (D.D.C. 1966).

3.   Claims 1-2 and 8-9 recite the limitation "the waveform". There is insufficient antecedent

basis for this limitation in the claim.

4.   Claim 3 recites the limitation "the waveforms". There is insufficient antecedent basis for

this limitation in the claim.

5.   Claims 4-5 recite the limitation "the positive time direction", "the negative time

direction", "the starting point", "the end point", "the center point", and "the point in time". There

is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis

for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Shanks et al.

(US2002/0152044).

Regarding claim 1, Shanks et al. anticipate a communication method for a noncontact RF ID

system that uses a first waveform, a second waveform, and a third waveform, wherein:

one of the rising timing and the falling timing of the waveform output when

communicating by using the first waveform, the second waveform, and the third waveform,

becomes periodic (Figs. 3-5, paragraphs 0096-0103).

Regarding claim 7, Shanks et al. anticipate the limitation of claim 1.

Shanks et al. also anticipate a noncontact 1kF ID system which uses the communication method

according to claim 1, comprising:

a clock generating device that generates an internal clock such that the state transition of

the internal clock is generated in synchronism with the timing of the rise of the modulating signal

(paragraphs 0391-0393); and a logic circuit that operates in synchronism with the state transition

of the clock generated by the clock generating device (paragraphs 0391-0393).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

7.   Claims 2-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Shanks et al. (US2002/0152044).

Regarding claim 2, Shanks et al. teach the limitation of claim 1.

Shanks et al. teach the first waveform and the second waveform are formed by a basic waveform

that has one of a rising state transition and a falling state transition at the approximate center part

of the waveform (Figs. 3-4); and

in the case in which said state transition occurs outside the approximate center of the

basic waveform when communicating by using the first waveform and the second waveform,

communication is carried out by using the third waveform in place of the first waveform and the

second waveform (Figs. 3-5, paragraphs 0096-0103).

But, Shanks et al. do not expressly disclose the third waveform is formed by a plurality of basic

waveforms that have said one state transition at the approximate center part of the waveform, and

the third waveform is formed such that said one state transition occurs only at the approximate

center part of the plurality of the waveforms.

However, at the time the invention was made, it would have been a person of ordinary skill in the

art to modify the third waveform into formed by a plurality of basic waveforms that have said

one state transition at the approximate center part of the waveform, and the third waveform is

formed such that said one state transition occurs only at the approximate center part of the

plurality of the waveforms. One of ordinary skill in the art would have expected Applicant's

invention to perform equally well with the waveform Shanks et al. disclose because the third

waveform serves its representation and distinguishable from the first and second waveforms.

Regarding claim 6, Shanks et al. teach the limitation of claim 2.

Shanks et al. also teach communication is carried out by assigning a code tt1" and a code tç0" to

the first waveform and the second waveform, and assigning a combination of the code "1" and

the code "0" associated with the combination to the third waveform, which is used in place of the combination of the first waveform and the second waveform (Figs. 3-4).

Regarding claim 3, Shanks et al. teach the limitation of claim 2.

But, Shanks et al. do not expressly disclose the third waveform is a waveform that is used in place of m waveforms (here, m is a natural number equal to or greater than 2) when one of the first waveform and the second waveform continues in succession and an identical rising or falling state transition which is occurred at the approximate center part of the waveform is occurred at the connection part of the waveforms, and furthermore, a combination of the first waveform and the second waveform that includes a connection part of the waveforms that produces the state transition, consists of m waveforms.

However, at the time the invention was made, it would have been a person of ordinary skill in the art to modify the third waveform into being a waveform that is used in place of m waveforms (here, m is a natural number equal to or greater than 2) when one of the first waveform and the second waveform continues in succession and an identical rising or falling state transition which is occurred at the approximate center part of the waveform is occurred at the connection part of the waveforms, and furthermore, a combination of the first waveform and the second waveform that includes a connection part of the waveforms that produces the state transition, consists of m waveforms. One of ordinary skill in the art would have expected Applicant's invention to perform equally well with the waveform Shanks et al. disclose because the third waveform serves its representation and distinguishable from the first and second waveforms.

Regarding claim 4, Shanks et al. teach the limitation of claim 3.

Shanks et al. do not expressly disclose in the case in which the state transition is rising, the first waveform is a waveform that maintains a low level in the negative time direction for T/2 from the point in time that the waveform first rises, which is the center point of the waveform, and maintains a high level state for T/2 in the positive time direction from this center point;

the second waveform is a waveform that maintains a high level state in the positive time direction for t1 from the point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time t2 until the end point of the waveform, maintains a low level state in the negative time direction for time t1 from the center point of the waveform, and maintains a high level state for time t2 until the starting point of the waveform (here, t denotes time, T denotes one cycle of the first and second waveforms, and t1 + t2 = T/2); and

the third waveform is a C(2n) waveform which, in the case in which m=2n, maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for time t4 until the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 − k)th time; maintains a low level state for t (2 (n - k) + 3) in the negative time direction from the point in time that the waveform rises for the (n + 1 − k)th time; maintains a high level state in the positive time direction for T/2 from the point in time that the waveform rises for the nth time; maintains a low level state in the negative time direction for t(2 (n - 1) + 3) from the point in time that the waveform rises for the nth time;

maintains a high level state in the positive time direction for t(2 (n - 1) +3) from the point in time

that the waveform rises for the (n + l)th time; maintains a low level state in the negative time

direction for T/2 from the point in time that the waveform rises for the (n + l)th time; maintains a

high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the

waveform rises for the (n + k)th time; maintains a low level state in the negative time direction

for t (2 (n - k) + 6) from the point in time that the waveform rises for the (n + k)th time;

maintains a low level state in the negative time direction for t6 from the point in time that the

waveform rises the last time; maintains a high level state in the positive time direction for t3

from the point in time that the waveform rises the last time; and maintains a low level state for

time t4 until the end point of the waveform, where n and k are natural numbers; n >= k >= 1; t is

time; T is one cycle of the first and second waveforms; and t3 + t4 = T/2; t(2 (n - k) + 5) + t(2 (n

- k) + 6) = T (when n and k >= 2); and

in the case in which m = 2n + 1, the third waveform is a C(2n + 1) waveform that

maintains a high level state in the positive time direction for t6 from the point in time that the

waveform first rises; maintains a low level state in the negative time direction for t3 from the

point in time that the waveform first rises; maintains a high level state for t4 from the starting

point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) +

6) from the point in time that the waveform rises for the (n + 1 - k)th time; maintains a low level

state in the negative time direction for t(2 (n - k) + 3) from the point in time that the waveform

rises for the (n + 1 - k)th time; maintains a high level state in the positive time direction for t(2

(n - 1) + 5) from the point in time that the waveform rises for the (n + 1)+ time; maintains a low

level state in the negative time direction for t(2 (n - 1) + 5) from the point in time that the

waveform rises for the (n + 1)th time; maintains a high level state in the positive time direction

for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + 1 + k)th time;

maintains a low level state in the negative time direction for t(2 (n - k) + 6) from the point in

time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative

time direction for t6 from the point in time that the waveform rises the last time; maintains a high

level state in the positive time direction for time t3 from the point in time that the waveform rises

the last time; and maintains a low level state for t4 until the end point of the waveform; (where n

and k are natural numbers, n >= k >= 1, t is time, T is one cycle of the first and second

waveforms, t3 + t4 = T/2, and t(2 (n - k) + 5) + t (2 (n - k) + 6) = T).

However, at the time the invention was made, it would have been a person of ordinary skill in the

art to modify the first waveform, the second waveform, and the third waveform into as specified

in the claim. One of ordinary skill in the art would have expected Applicant's invention to

perform equally well with the waveforms Shanks et al. disclose because the first, second, and

third waveforms serve their representations and distinguishable from each other.

Regarding claim 5, Shanks et al. teach the limitation of claim 3.

But, Shanks et al. do not expressly disclose in the case in which the state transition is a falling

state transition, the first waveform is an inverted waveform that maintains a low level in the

negative time direction for T/2 from the point in time that the waveform first rises, which is the

center point of the waveform, and maintains a high level state for T/2 in the positive time

direction from this center point;

the second waveform is an inverted waveform that maintains a high level state in the positive time direction for t1 from the point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time t2 until the end point of the waveform, maintains a low level state in the negative time direction for time t1 from the center point of the waveform, and maintains a high level state for time t2 until the starting point of the waveform (here, t denotes time, T denotes one cycle of the first and second waveforms, and t1 + t2 = T/2); and

the third waveform is an inverted C(2n) waveform which, in the case in which m=2n, maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for time t4 until the starting point of the waveform; maintains a high level state in the positive time direction for t(2 (n - k) + 6) from the point in time that the waveform rises for the (n + 1 − k)th time; maintains a low level state for t (2 (n - k) + 3) in the negative time direction from the point in time that the waveform rises for the (n + 1 − k)th time; maintains a high level state in the positive time direction for T/2 from the point in time that the waveform rises for the nth time; maintains a low level state in the negative time direction for t(2 (n - 1) + 3) from the point in time that the waveform rises for the nth time; maintains a high level state in the positive time direction for t(2 (n - 1) +3) from the point in time that the waveform rises for the (n + 1)th time; maintains a low level state in the negative time direction for T/2 from the point in time that the waveform rises for the (n + 1)th time; maintains a high level state in the positive time direction for t(2 (n - k) + 3) from the point in time that the waveform rises for the (n + k)th time; maintains a low level

state in the negative time direction for t $(2 (n - k) + 6)$ from the point in time that the waveform

rises for the $(n + k)$th time; maintains a low level state in the negative time direction for t6 from

the point in time that the waveform rises the last time; maintains a high level state in the positive

time direction for t3 from the point in time that the waveform rises the last time; and maintains a

low level state for time t4 until the end point of the waveform, where n and k are natural

numbers', $n >= k >= 1$; t is time; T is one cycle of the first and second waveforms; and $t3 + t4 =$

$T/2$; $t(2 (n - k) + 5) + t(2 (n - k) + 6) = T$ (when n and k $>= 2$); and in the case in which $m = 2n +$

1, the third waveform is an inverted $C(2n + 1)$ waveform that maintains a high level state in the

positive time direction for t6 from the point in time that the waveform first rises; maintains a low

level state in the negative time direction for t3 from the point in time that the waveform first

rises; maintains a high level state for t4 from the starting point of the waveform; maintains a high

level state in the positive time direction for $t(2 (n - k) + 6)$ from the point in time that the

waveform rises for the $(n + 1 - k)$th time; maintains a low level state in the negative time

direction for $t(2 (n - k) + 3)$ from the point in time that the waveform rises for the $(n + 1 - k)$th

time; maintains a high level state in the positive time direction for $t(2 (n - 1) + 5)$ from the point

in time that the waveform rises for the $(n + 1)$th time; maintains a low level state in the negative

time direction for $t(2 (n - 1) + 5)$ from the point in time that the waveform rises for the $(n +$

1)t.11 time; maintains a high level state in the positive time direction for $t(2 (n - k) + 3)$ from the

point in time that the waveform rises for the $(n + 1 + k)$th time; maintains a low level state in the

negative time direction for $t(2 (n - k) + 6)$ from the point in time that the waveform rises for the

$(n + 1 + k)$th time; maintains a low level state in the negative time direction for t6 from the point

in time that the waveform rises the last time; maintains a high level state in the positive time

direction for time t3 from the point in time that the waveform rises the last time; and maintains a

low level state for t4 until the end point of the waveform; (where n and k are natural numbers, n

>= k >= 1, t is time, T is one cycle of the first and second waveforms, t3 + t4 = T/2, and t(2 (n -

k) + 5) + t (2 (n - k) + 6) = T).

However, at the time the invention was made, it would have been a person of ordinary skill in the

art to modify the first waveform, the second waveform, and the third waveform into as specified

in the claim. One of ordinary skill in the art would have expected Applicant's invention to

perform equally well with the waveforms Shanks et al. disclose because the first, second, and

third waveforms serve their representations and distinguishable from each other.

Regarding claim 8, Shanks et al. teach a transmitter (Figs. 1-2, 10-11) that forms and transmits a

first waveform, a second waveform, and a third waveform, wherein:

the first waveform and the second waveform are formed by a basic waveform that has a

state transition that either rises or falls at the approximate center part of the waveform (Figs. 3-

4); and

transmission is carried out by using the third waveform in place of the first waveform and

the second waveform in the case in which transmission is carried out using the first waveform

and the second waveform and in the case in which said one state transition is generated outside

the approximate center part of the waveform (Figs. 3-5, paragraphs 0096-0103).

But, Shanks et al. do not expressly disclose the third waveform is formed by a plurality of basic

waveforms that have one state transition at the approximate center part of the waveform and said

one state transition is generated only at the approximate center part of the plurality of basic waveforms.

However, at the time the invention was made, it would have been a person of ordinary skill in the art to modify the third waveform into formed by a plurality of basic waveforms that have one state transition at the approximate center part of the waveform and said one state transition is generated only at the approximate center part of the plurality of basic waveforms. One of ordinary skill in the art would have expected Applicant's invention to perform equally well with the waveform Shanks et al. disclose because the third waveform serves its representation and distinguishable from the first and second waveforms.

Regarding claim 9, Shanks et al. teach a receiver (Figs. 1-2, 10-11) that receives the first waveform and the second waveform, and the third waveform, wherein:

the first waveform and the second waveform are formed by a basic waveform that has a state transition that either rises or falls at the approximate center part of the waveform (Figs. 3-4); and in the case in which the third waveform is received, the receiver recognizes the reception of a combination of the first waveform and the second waveform in which said one state transition has occurred outside the approximate center of the basic waveform (Figs. 3-5, paragraphs 0096-0103).

But, Shanks et al. do not expressly disclose the third waveform is formed by a plurality of basic waveforms that have one state transition at the approximate center part of the waveform and the one state transition is generated only at the approximate center part of the plurality of basic waveforms.

However, at the time the invention was made, it would have been a person of ordinary skill in the art to modify the third waveform into formed by a plurality of basic waveforms that have one state transition at the approximate center part of the waveform and the one state transition is generated only at the approximate center part of the plurality of basic waveforms. One of ordinary skill in the art would have expected Applicant's invention to perform equally well with the waveform Shanks et al. disclose because the third waveform serves its representation and distinguishable from the first and second waveforms.
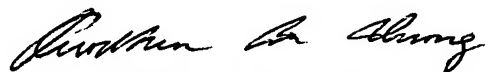
Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhiyu Lu whose telephone number is (571) 272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vuong Quochien can be reached on (571) 272-7902. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zhiyu Lu
July 31, 2006

9/18/06

QUOCHIEN B. VUONG
PRIMARY EXAMINER